

## Epidemiology, Prevention and Control

### Epidemiology of Cardiovascular Disease

#### GW25-e1649

##### Prevalence and clustering of cardiovascular risk factors among adults in Northeast China

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**Objectives:** To estimate the prevalence and clustering of major cardiovascular risk factors among adults in Northeast China.

**Methods:** Totally, 37141 individuals undergoing a health screening program at the International Health Promotion Center in 1<sup>st</sup> Hospital of Jilin University were enrolled. Height, weight, blood pressure, fasting serum glucose, total cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL) and low density lipoprotein (LDL) were recorded.

**Results:** Compared to women, the age-standardized prevalence of overweight (44.0% vs 25.0%) and obesity (20.2% vs 7.1%), hypertension (33.7% vs 19.3%), dyslipidemia (63.8% vs 42.3%), impaired fasting glucose (5.1% vs 4.2%) and diabetes mellitus (8.1% vs 3.5%) was higher in men. Overall, 69.1%, 32.7% and 10.0% of participants had  $\geq 1$ ,  $\geq 2$ ,  $\geq 3$  major cardiovascular risk factors (obesity, hypertension, dyslipidemia, diabetes mellitus). For men, the figures were 79.2%, 41.1% and 13.3%, and for women 53.4%, 19.8% and 5.0%. With increasing age and with increasing body mass index, the prevalence of clustering of cardiovascular risk factors increased in both men and women.

**Conclusions:** There is a high prevalence of cardiovascular risk factors in adults in Northeast China: one out of three has at least two risk factors. Prevalence was higher in men than in women. Clustering of risk factors is more common with increasing age and body mass index in both men and women. Prevention of development of risk factors should be an extremely high priority in this region.

#### GW25-e1672

##### The survey on the cardiovascular risk factors of Chinese professional athletes at heavy-weight class

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**Objectives:** To assess the risk factors of cardiovascular diseases in professional athletes at heavy-weight class in China and provide scientific reference recommendation.

**Methods:** 50 athletes of strength sports were enrolled and written informed consents were obtained between May and October 2013. The experimental measurement is to determine blood glucose (GLU), blood lipids (HDL, LDL, TC, and TG), blood pressure (SBP/DBP), waist circumference (WC), hip circumference (HC), height, weight, and body mass index (BMI). We used three criteria provided by Guidelines for Prevention and Treatment of Hypertension in China (2004), Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia (WHO, 2006), and Guidelines on Prevention and Treatment of Blood Lipid Abnormality in Chinese Adults (2007) to define the abnormalities in blood glucose, blood lipids, blood pressure. Statistical analysis was performed using SPSS 10.0 (SPSS Inc, Chicago, IL, USA). ANOVA, Pearson Chi-Square Test and odds ratios were used. All P values were two-sided and statistical significance was set at 0.05 level.

**Results:** Among 50 athletes, the abnormality proportions (at least one abnormality among blood pressure, blood glucose and blood lipids) was high as 53.1%; in addition, the higher weights were always the more abnormal in blood glucose, blood lipids (HDL, and TC, and TG), and blood pressure ( $P < 0.05$ ). As compared with the athletes less than nineteen years old (47.6% of all athletes), athletes more than nineteen years old (52.4% of all athletes) had significantly higher proportions of abnormalities in blood pressure; blood glucose and blood lipids than the athletes who are less than nineteen years old (Odds ratio=3.5, 95% CI (1.6, 7.8)).

**Conclusions:** As about professional athletes at the heaviest-weight-class in China, hypertension, hyperlipidemia and hyperglycemia were the main features of cardiovascular unhealthy, we should pay intensive attention to the characteristic on medical screening, especially the athletes advanced in years.

#### GW25-e3502

##### Takotsubo cardiomyopathy are easier to occur in the patients with chronic circulatory diseases

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**Objectives:** Tako-tsubo cardiomyopathy is increasingly being recognized worldwide. However, it is currently unclear whether chronic diseases may contribute to the

prevalence of TTC. The purpose of this study was to investigate whether the occurrence of TTC was impact by different chronic diseases.

**Methods:** The case reports about TTC was searched from 1998 to March 2014 in the Pubmed, Springer, Elsevier, CNKI and wanfang databases using the Medical Subject Headings: ‘‘Tako-Tsubo cardiomyopathy’’, ‘‘Tako-Tsubo syndrome’’, ‘‘stress cardiomyopathy’’, ‘‘ampulla cardiomyopathy’’ and ‘‘apical ballooning syndrome’’. Those meeting the following criteria were included in the study for analyzing: (1) the case reports of TTC were written in English or Chinese; (2) the age, sex and chronic diseases of a patient were clearly described; (3) the patients underwent an operation in 3 months or did not recover after 6 months. Patients from selected case reports were divided into eight groups based on the basic chronic diseases of TTC patients.

**Results:** A total of 2414 literatures of TTC were documented in this study. There were 773 literatures, 857 patients meet the criteria, 736 females and 121 males, accounted for 85.9% and 14.1% respectively. Males were younger than females (mean age  $63.40 \pm 14.77$  years vs  $57.27 \pm 17.13$  years,  $P < 0.05$ ). However, males (34 patients) and females (206 patients) with chronic diseases occurred TTC at the age of 60-69 were highest, the frequency of other age intervals were lower than it. In TTC patients, the ratio of circulatory diseases was the highest (544 patients, 63.5%), next was endocrine diseases (198 patients, 23.1%), then in turn, nervous diseases (155 patients, 18.1%), digestive diseases (110 patients, 12.8%) and respiratory diseases (108 patients, 12.6%), locomotor diseases (49 patients, 5.7%), urinary diseases (39 patients, 4.6%) and others (89 patients, 10.4%), including hematological diseases hematological diseases reproductive system disease reproductive disease, hematological disease, systemic disease, skin disease, eye disease and stomatology. Multiple comparisons of rates showed that takotsubo cardiomyopathy are easier to occur in the patients with chronic circulatory diseases. A more detailed analysis was for the five group that had more than 100 patients. The results indicated hypertension, alone or in association with other chronic diseases was the most common one (412 patients, 48.1%, CI 44.8-51.4%). Hyperlipemia and diabetes of TTC patients were reported in 157 cases (18.3%, CI 15.8%-20.8%) and 109 cases (12.7%, CI 10.5%-14.9%), respectively.

**Conclusions:** (1) Both males and females TTC patients with chronic diseases showed the highest frequency at the age interval of 60-69, whereas, males were younger than females. (2) The occurrence of TTC was closely related to the circulatory diseases. (3) Hypertension, hyperlipemia and diabetes were three of most common in TTC patients.

#### GW25-e3567

##### Ethnic Differences in the Incidence of Hypertension among Rural Chinese Adults: Results from Liaoning Province

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**Objectives:** Cardiovascular disease, including both stroke and heart disease, is now the leading cause of death among Chinese adults. As hypertension is an important modifiable risk factor for cardiovascular disease, it attracts more attention recent years. Although the exact causes and mechanisms of hypertension are not known, it was generally believed that both genetic factors and environmental factors are involved in determining the prevalence and incidence of hypertension. Therefore, we compared the incidence of hypertension, and its associated risk factors between Mongolian and Han populations in northeast China.

**Methods:** Between 2004 and 2006, a multistage random cluster sampling design was used to select a representative sample from a rural population of 45925 individuals aged 35 years and older from Fuxin country of Liaoning Province in northeastern China. In 2010, participants who were selected to participate at baseline were invited by the investigators to return to the clinic for follow-up. 20247 Han people and 4753 Mongolian people without hypertension at baseline were finally selected as our study objects exclusive of hypertension, other ethnic people and loss of follow-up. We used Joint National Committee on High Blood Pressure -7 (JNC-7) criteria, to define prehypertension and hypertension.

**Results:** During mean 4.3 years follow-up, 8779 individuals of the total 25, 000 objects developed hypertension. Comparing the incidence of hypertension of the Han population and the Mongolian population. The age-adjusted incidence rate of hypertension was 9.77 per 100 person-years (95% CI, 9.30 to 10.25) and 12.64 per 100 person-years (95% CI, 11.56 to 13.73) respectively. Among participants who were classified as having normal BP at baseline, the age-adjusted incidence rate of hypertension was 8.28 per 100 person-years (95% CI, 7.45 to 9.12) in the Han population and 10.57 per 100 person-years (95% CI, 8.44 to 12.70) in the Mongolian population. The incidence rate of hypertension among subjects with prehypertension at baseline was 10.36 per 100 person-years (95% CI, 9.79 to 10.93) in the Han population and 13.24 per 100 person-years (95% CI, 12.01 to 14.53) in the Mongolian population. The incidence of hypertension was positively correlated with age, physical activity, drinking, BMI, family history of hypertension and prehypertension status in the Han population. In the Mongolian population, besides the above factors, hypertension was positively correlated with education level, too. The rates of awareness, treatment and control of hypertension for newly developed cases among both Han and Mongolian populations were low. (36.5% vs 42.3%, 13.1% vs 18.2%, 0.7% vs 1.3%,  $P < 0.05$ , respectively).

**Conclusions:** The incidence rate of hypertension is higher in the Mongolian populations than that in the Han populations, and hypertension in both ethnic populations was associated with similar risk factors. Our results suggest that most newly-diagnosed cases of hypertension are not adequately treated. Improvements in hypertension prevention and control programs in rural China are urgently needed.